

# 2011 Military Health System Conference

## High Tech Meets High Touch:

Using Technology to Redefine Inpatient Care Delivery in the Fort Belvoir Community Hospital

*The Quadruple Aim: Working Together, Achieving Success*

Dr Rick Repeta  
COL Kathleen Ford  
26 Jan 2011



DeWitt Army Community Hospital, Fort Belvoir, VA

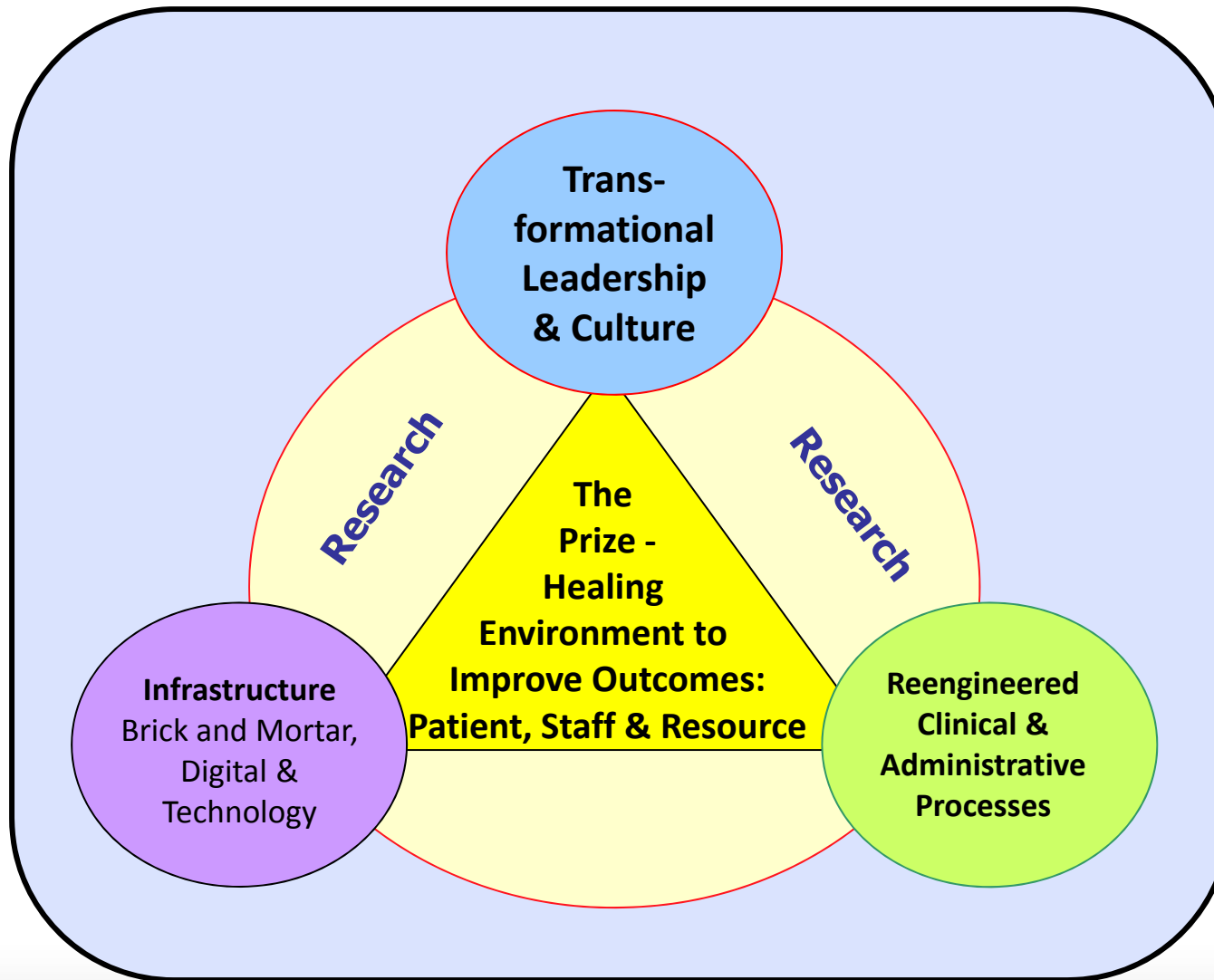
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# Objectives



- Review EBD Principles and Goals for FBCH
- Discuss how the use of Technology will Re-Design Work Processes and Improve Outcomes
- The Path to Redefined Care

# Creating Healing Environments





# Evidence Based Design Principles:

## Patient and Family Centered Care & Care of the Whole Person



### EBD Goals:

Decrease stress

Increase social  
support

Provide light

Provide positive  
distractions

Improved  
wayfinding



HDR | Dewberry Joint Venture

FORT BELVOIR COMMUNITY HOSPITAL



# EBD Principles:

Patient and Family Centered Care & Care of the Whole Person



## EBD Goals:

**Greater sense of control**

**Large windows for natural light**

**Family Zone**

**Improve rest and sleep**

**Provide positive distractions**





# EBD Principle: Improve Healthcare Quality and Safety



## EBD Goals:

**Decrease hospital  
based infections**

**Prevent patient  
falls**

**Reduce  
medication errors**

**Reduce noise  
stress to improve  
speech  
intelligibility**



# But it can get even better....



***We are seeking  
Transformational  
not Incremental Change!***





# The Next Step: Using Technology to Re-Engineer Processes



- Technology can contribute to transforming the health care environment by
  - Allowing patient to control their environment and actively participate in their care
  - Improving rest and sleep
  - Reducing noise and improving speech intelligibility
  - Increasing care coordination and team effectiveness
- Bridge the gap between physical structure and organization through information and communications infrastructure

# Smart Suite Technology in the Fort Belvoir Community Hospital



The Cerner Smart Suite combines innovative technologies, medical device interoperability and workflow solutions to improve patient care and clinician efficiency. The Smart Suite incorporates key elements of the patient and clinician experience to streamline care. The objective of the Smart Suite is to create an environment that:

- Connects medical devices to the EMR
- Allows caregivers to view relevant clinical data from the EMR and medical devices
- Empowers patients and their families by connecting them to their personal health record.

#### CareAware RoomLink

Electronic signage outside a patient room to communicate appropriate data to clinicians, including falls risk and allergies, as well as whether or not a clinician visit is in-progress.



#### CareAware myStation

Offers interactive health information, education and entertainment to improve the patient and family experience.

#### CareAware iAware

Provides clinicians a personalized view of all information relevant to patient care by enhancing communication and access to information.

#### CareAware iBus including Bed Connectivity

CareAware iBus™ is the core component of the CareAware architecture that manages two-way communication between devices and the EMR.

#### CareAware EPS

A fully integrated, enterprise-wide positioning and real time location solution that delivers clinical integration and process improvement benefits.

#### CareAware AlertLink

Improves patient outcomes by routing alerts to a clinician's mobile device.





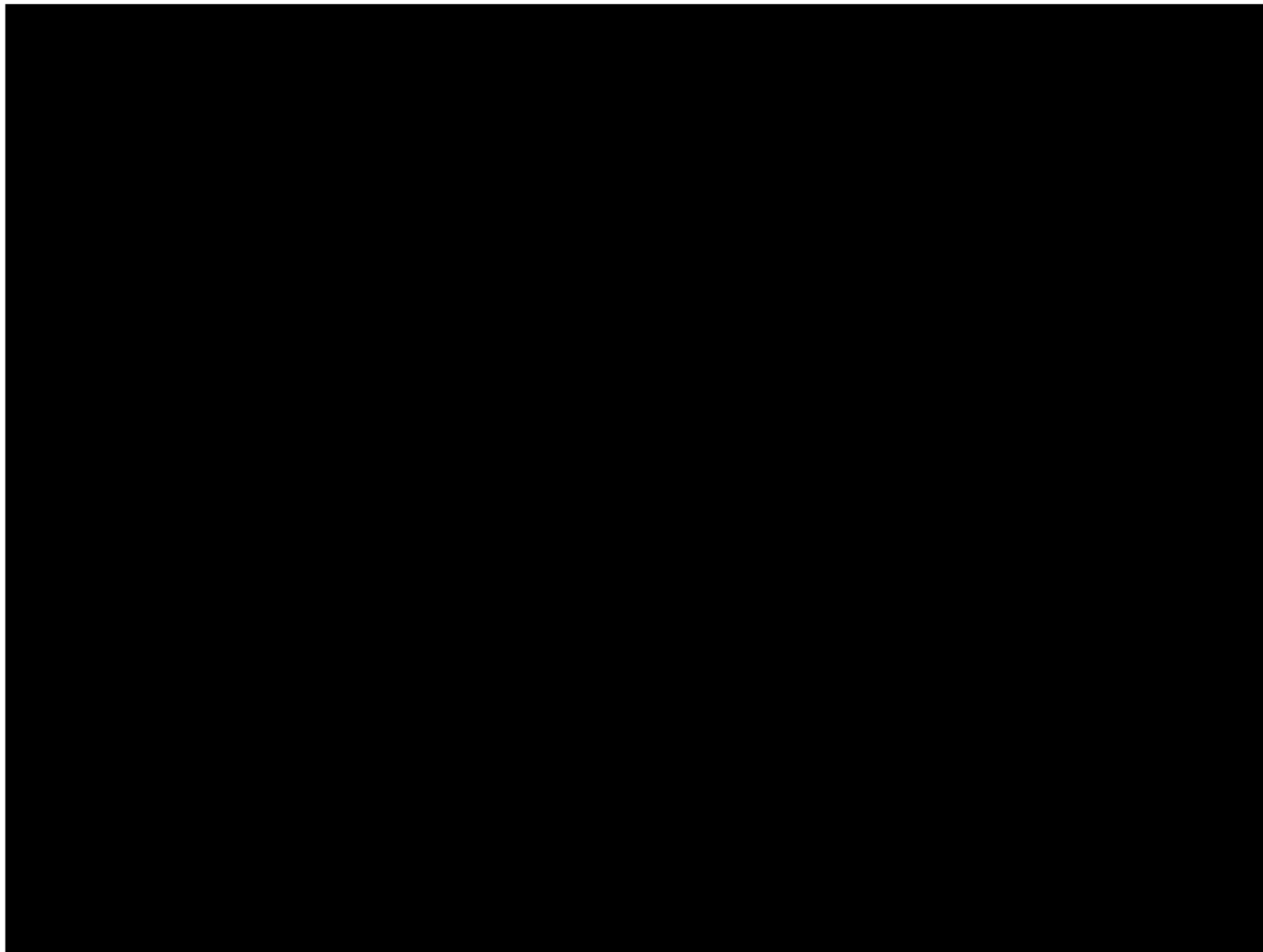
# Smart Suite Technology in the Fort Belvoir Community Hospital



- iAware: Clinical Dashboard
- CareAware iBus: Biomedical Device Integration
  - AlertLink for Device Alert/Alarm Routing
- Enterprise Positioning Solution
  - Real Time Location System (RTLS) = Sonitor
- myStation: Interactive Patient System
  - Environmental Control (lights, shades, temp)
- RoomLink: Electronic Room Signage
- Integrated with MHS Legacy EHR systems
  - Essentris (CliniComp)
  - AHLTA (Armed Forces Health Longitudinal Health Application)
  - CHCS (Composite Healthcare System)



# Smart Suite Video





# Making the Case for Change



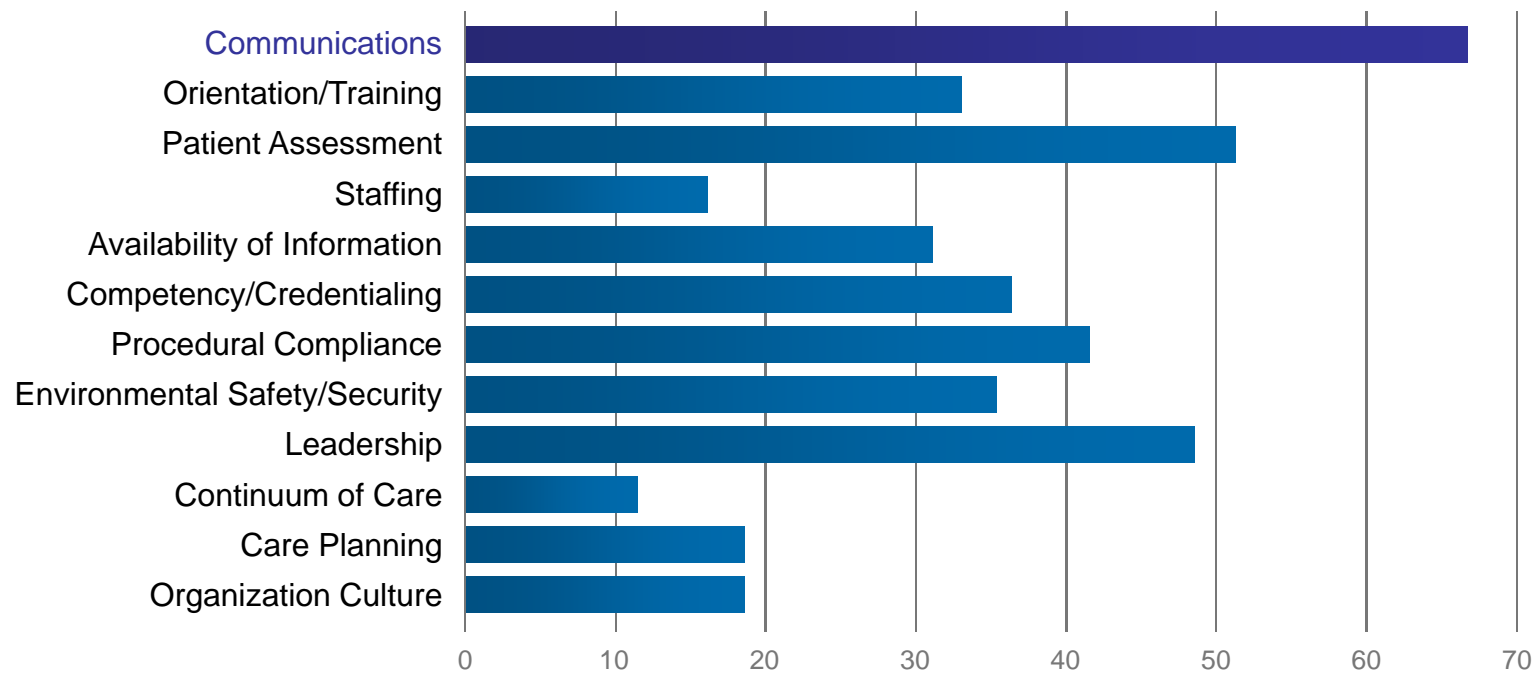
- “how well we are cared for by nurses affects our health...” (IOM, 2004)
- Nursing actions are directly related to better patient outcomes (Kahn et al., 1990)
- Less nursing time provided to patients is associated with higher rates of infection, gastrointestinal bleeding, pneumonia, cardiac arrest, and death (Needleman et al., 2002)
- How nursing time is divided (Hendrich et al., 2008)
  - 7.2% time on physical assessment/surveillance
  - 35.3% documentation
  - 17.2% medication administration
  - 20.6% care coordination (**communicating with team**)
  - Median walking distance in 10 hr shift = 3.0 miles



# Poor Communication is Leading Cause of Death



A Joint Commission study found that poor communication was the leading cause of accidental death and serious injury in hospitals



Source: Joint Commission 2006.

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# Communicating: Current State



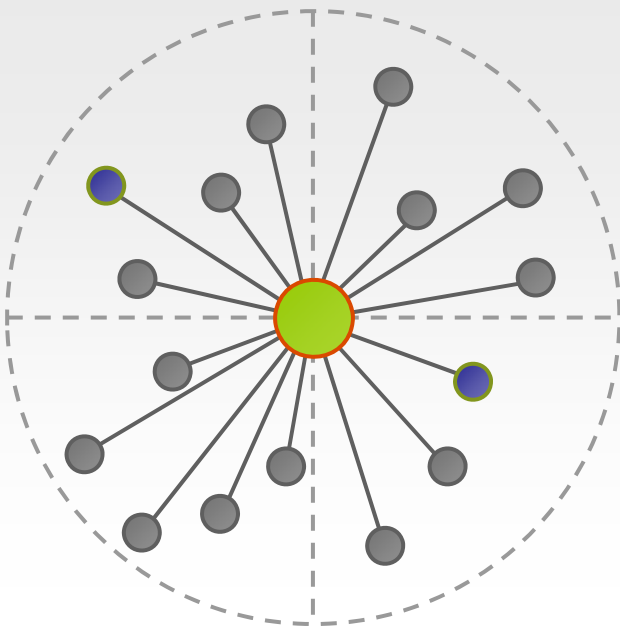
- Page and wait
- Hunt and gather
- Hub and spoke
- Central Nurse Call system



# Future State: Direct Communication at the Point of Care



## Current



Current Hub and Spoke  
Communication – leaving the  
bedside

## Post Vocera



Direct Wireless  
Communication

Vocera empowers clinical staff to communicate directly to the  
right person from the point of care



# Vocera Features



- Connects staff members regardless of location
  - Place and receive calls world-wide
- Hands free, lightweight device
- 1:1 model
- Usage
  - By name
  - Role based
  - Action team

# Critical Alerts and Alarms Delivered to Vocera Devices



EMR



Patient safety

Nurse call



Patient Experience

Patient monitoring



Responsiveness

Bed management



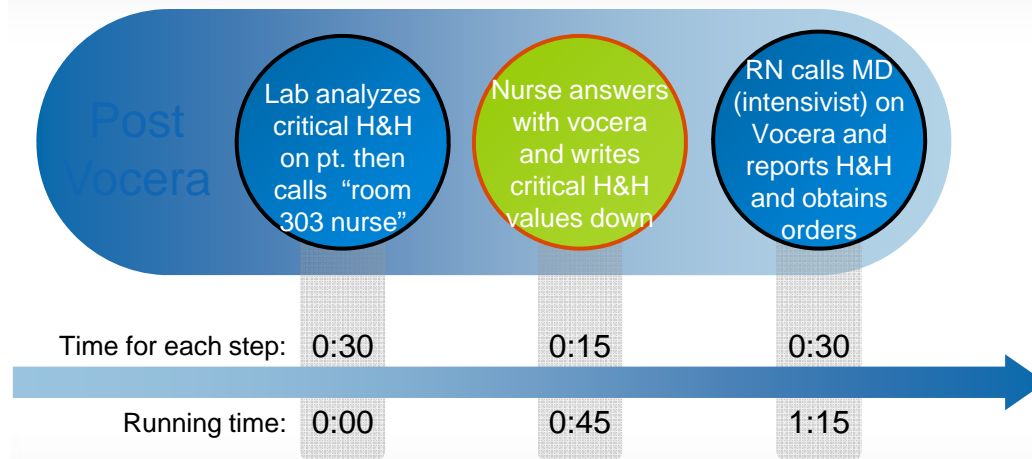
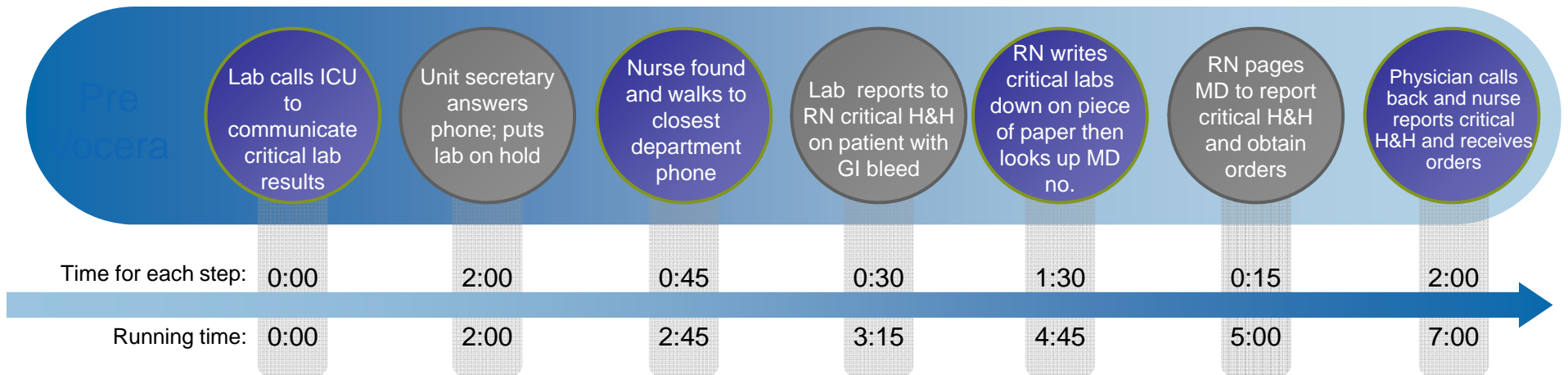
Length of stay

System Type	Description	Impact
GE Telligence Nurse Call System	Caregivers can instantly receive call light inquiries and respond back to the room providing the best patient experience possible	Enhance Patient Experience
Patient Monitoring	Patient monitoring systems provide notification to caregivers of deterioration or change in a patient's condition.	Improve Nurse Responsiveness
Bed Management	Bed management systems provide notification to care teams to facilitate the timely transport of patients and room cleaning requests	Reduce Length of Stay (LOS)

# Communication Workflow Improvement Example



Lab calls the department secretary to report critical patient lab results to the primary nurse caring for the patient



**Total time saved by Vocera:  
5:45 minutes**





# Producing a More Quiet Healing Environment



Gateway Hospital – Banner Health  
7 Hospital System  
Gilbert, AZ

Challenge:  
Improve patient satisfaction and become a destination hospital by deploying evidence-based design features to reduce noise across inpatient units.

Patient  
Satisfaction

## Status Quo

- ✓ Peak noise levels average **85 – 90 db(A)**
- ✓ Patient sleep disruption and annoyance
- ✓ Increased staff fatigue and perceived work pressure

## Approach

One Vocera badge deployed per 2.75 health system employees with particular emphasis placed on hospitalist utilization to eliminate use of overhead paging.

- 95% of employees with Vocera
- 85,000 monthly badge-badge calls

## Vocera Results

- ✓ 93 % of patients “likely to recommend hospital”; health system average 82%\*
- ✓ 62% of patients report hospital is quiet at night; health system average 50%\*
- ✓ Peak noise levels average **30 – 35 db(A)**

\* Press Ganey

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# Other Technologies



- Pneumatic Tube System
  - Lab and Pharm applications to improve patient experience
- Patient Queuing (Q-Flow)
  - Kiosks to start med prep process prior to arriving at window
  - Provide options and enhance convenience
- Live Data Video Integration





# IT as a Conduit to the World

**STORZ**  
KARL STORZ — ENDOSKOPE



**InTouch: VisitOR1**



# Sustainable Transformation



**“a rope with 3 strands is hard to break” – Ecclesiastes 4:12**

**Evidence Based Design**

**Re-Engineered Processes  
Leveraging Technology**

**Transformational  
Leadership and  
Culture**



**“First we shape our buildings; thereafter,  
they shape us.” ~ Winston Churchill**





# The Fort Belvoir Community Hospital



***“Where Evidence Based Design meets Patient/Family Centered Care in a Culture of Excellence”***

